

**REMARKS**

In the office action, the restriction requirement is made final and therefore claims 14-15, 20-33 and 35-51 have been withdrawn.

Claims 1-12, 16-19 and 34 stand rejected; in response, claims 1, 17 and 34 have been 34; claims 16 and 19 have been canceled; claims 1-12, 17-18 and 34 remain pending.

The patent office rejects claims 1, 8 and 11-12 under 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent No. 4,752,141 ("Sun"). In response, claim 1 has been amended to traverse this rejection. Specifically, claim 1 requires the distal end of the fiber optic cable to be encased in lumen which, in turn, is received in a coil spring. The coil spring has a gap in alignment with fluorescent material and, in turn, the lumen has an opening in alignment with fluorescent material. The gap in the spring and the opening in the lumen permit unimpeded heat flow to and from the fluorescent material. Thus, an improved temperature sensing catheter is provided.

Sun cannot serve as an anticipating reference for claims 1, 8 or 11-12 because nowhere in Sun does it recite a lumen with an opening to expose fluorescent material or the disposition of the fluorescent fiber optic tip of a catheter in a lumen and a coil spring. Thus, Sun is clearly deficient as a base reference and the anticipation rejection of claims 1, 8 and 11-12 based on Sun is improper and should be withdrawn.

Next, claims 1 and 5 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,012,809 ("Shulze"). In response, claim 1 has been amended to traverse this rejection.

Similar to the rejection based upon Sun, Shulze, like Sun, fails to teach or suggest the coil spring end with a gap in the coil and an opening in the lumen for superior heat conductance to the phosphor or fluorescent material. Shulze does not teach or suggest the structure and therefore Shulze cannot server as an anticipating reference for either claim 1 as amended or claim 5.

Accordingly, applicants respectfully submit that the anticipation rejection of claims 1 and 5 based upon Shulze is improper and should be withdrawn.

Turning to the obviousness rejections, claims 1-2, 5 and 9 stand rejected under 35 U.S.C. § 103 as being unpatentable over U.S. Patent Application No. 2003/0114761

("Brown") in view of U.S. Patent No. 6,377,842 ("Pogue"). In response, claim 1 has been amended to traverse this rejection.

Specifically, under MPEP §§ 2142 and 2143,

[t]o establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure.

*Citing, In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991); *see also* MPEP § 2143-§ 2143.03 for decisions pertinent to each of these criteria.

The rejection based upon Brown and Pogue fails to establish a *prima facie* case of obviousness because neither Brown nor Pogue teach or suggest the catheter tip structure recited in amended claim 1. Brown does not teach or suggest the coil structure or the gap in the lumen to provide an opening to the fluorescent material as recited in amended claim 1. Neither does Pogue. In fact, Pogue is only cited for the proposition that it teaches the use of a laser.

Accordingly, no combination of Brown and Pogue teach or suggest all the claim limitations and there is no suggestion in either reference to make the numerous modifications that would be needed to arrive at the structures recited in independent claims 1 and 34. Accordingly, the obviousness rejection based upon Brown and Pogue is respectfully traversed.

Next, claims 3-4 and 7 stand rejected under 35 U.S.C. § 103 as being unpatentable over Brown, Pogue, and further in view of U.S. Patent No. 4,652,143 ("Wickersheim").

The deficiencies of Brown and Pogue are discussed above. Wickersheim is only cited for the proposition of reciting specific luminescent materials. Wickersheim in no way teaches or suggest the tip structure recited in amended claim 1 and therefore the obviousness rejection based upon Brown, Pogue and Wickersheim is respectfully traversed.

Next, claim 10 is rejected under 35 U.S.C. § 103 as being unpatentable over Brown, Pogue and further in view of U.S. Patent No. 5,983,125 ("Alfano").

Again, the deficiencies of Brown and Pogue are discussed above. Wickersheim is merely cited for the proposition that it discloses the use of a filter. Wickersheim does not teach or suggest the catheter tip structure recited in amended claim 1 and therefore the obviousness rejection of dependent claim 10 based upon Brown, Pogue and Wickersheim is respectfully traversed.

Next, the office action rejects claims 16, 19 and 34 under 35 U.S.C. § 103 as being unpatentable over Shulze in view of U.S. Patent No. 5,378,234 ("Hammerslag"). In response, applicants present the following remarks.

Specifically, amended claims 1 and 34 require an opening in the lumen and a gap in the coil spring to provide unimpeded heat flow to and from the fluorescent material. Hammerslag does not teach or suggest this concept. The Hammerslag coil is consistent and includes no significant gaps for the transmission of heat. Hammerslag does not teach or suggest the gap structure or a lumen with an opening in registry a gap structure to provide unimpeded heat flow to and from a fluorescent material. Support for these added claim limitations appears at page 12, lines 9-13 of the present application as filed.

Thus, because Shulze does not teach or suggest these claim elements either, no combination of Shulze or Hammerslag teaches or suggests the tip structure of amended claims 1 and 34. Accordingly, the obviousness rejection of canceled claims 16 and 19 (i.e., amended claim 1) and amended claim 34 are respectfully traversed.

Finally, claims 17 and 18 stand rejected under 35 U.S.C. § 103 as being unpatentable Shulze, Hammerslag and U.S. Patent No. 5,497,782 ("Fugoso").

The deficiencies of Shulze and Hammerslag are discussed above. Hammerslag does not teach or suggest the gap in the coils or the opening in the lumen. Neither does Shulze. Fugoso is merely cited for the proposition that it teaches a weld ball as an end cap. A review of Fugoso also reveals that it fails to teach or suggest the gap in outer coils and the opening in the inner lumen as recited in amended claim 1. Thus, no hypothetical combination of these references teaches or suggests every element of amended claim 1 and there is no teaching or suggestion found in the references that would motivate one of ordinary skill in the art to make the numerous modifications required to these three references to arrive at the structure of amended claim 1.

Accordingly, the obviousness rejections of claims 17 and 18 are traversed in view of the amendments to claim 1.

With all prior art rejections having been addressed and traversed, an early action indicating an allowability of claims 1-12, 17-18 and 34 is earnestly solicited.

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